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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WALLING, MEAGAN S

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,470

Applicant(s)

MCGEE ET AL.

Examiner

Meagan S Walling

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8 and 10-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8 and 10-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 5 recites the limitation "angle indicator" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 11, 12, 16, 18, 19, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Lampe et al. (US 5,476,014).

Regarding claim 12, Lampe et al. teaches measuring the angle of rotation, as applied to a fastener (Ref. 9) by a tool (Ref. 1), with a device, which comprises a housing (Ref. 2) that includes a shaft (Ref. 3) and an angle rate sensor (Ref. 23), the housing is configured to be positioned between the fastener and tool, the shaft is linked to an angle rate sensor that measures the speed (column 6, lines 11-12) and direction (column 4, lines 19-22) of the rotation applied; and displaying the current angle of rotation with an angle indicator positioned away from and linked to the tool (column 8, lines 31-35).

Regarding claim 16, Lampe et al. teaches a tool (Ref. 1) that applies torque to a fastener (Ref. 9); an apparatus that measures the angle of rotation beyond a specific reference point (Ref. 4, 104), the apparatus comprises a housing (Ref. 2) that includes an angle rate sensor (Ref. 23)

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that measures the speed (column 6, lines 11-12) and direction (column 4, lines 19-22) of the rotation applied and is configured between the tool and the fastener; an angle indicator that is located away from and linked to the apparatus (column 8, lines 31-35).

Regarding claim 18, Lampe et al. teaches that the tool is a ratchet (column 8, lines 36-37).

Regarding claim 19, Lampe et al. teaches that the tool is a socket (column 3, line 46).

Regarding claim 25, Lampe et al. teaches means for enclosing (Ref. 2) configured to be located between a tool (Ref. 1) and a fastener (Ref. 9); means for applying torque to the fastener, the means for applying torque is located within the means for enclosing (Ref. 3); means for measuring the angle of rotation of the fastener from a fixed reference point (Ref. 4, 104), the means for measuring located within the means for enclosing (Ref. 13, 23, 33); and means for displaying the current angle of rotation, the means for displaying located apart from and linked to the means for applying (column 8, lines 31-35).

Regarding claim 11, Lampe et al. teaches that the means for applying torque to a fastener is a shaft (Ref. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe et al. in view of Tambini (6,609,407).

Regarding claim 1, Lampe et al. teaches an apparatus that measures the angle of rotation applied to a fastener (Ref. 9) by a tool (Ref. 1) beyond a specific reference point (Ref. 4, 104), the apparatus comprises a housing (Ref. 2) that includes a shaft (Ref. 3) and a angle rate sensor (Ref. 23), the housing is configured to be positioned between the tool and fastener, the shaft is linked to the angle rate sensor; and an angle indicator located apart from the tool, and linked to the apparatus (column 8, lines 31-35).

Lampe et al. does not teach that the angle indicator is a multimeter.

Tambini '407 teaches using a multimeter as a readout of an angle potentiometer (column 2, lines 50-51).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe et al. with Tambini '407 to use a multimeter as an angle indicator. The motivation for making this combination would be to accurately display the angle.

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '407 and further in view of Tambini (5,581,042).

Lampe and Tambini '407 together teach all of the limitations of claims 2 and 3 except an angle selector adjustable to a desired angle; a processor that calculates a current angle of rotation from the rate sensor measurements; and a zero point indicator that sets a zero point for the processor to calculate the selected angle (current claim 2) and that the zero point is the reference point for the processor to calculate a selected angle (current claim 3).

Regarding claim 2, Tambini '042 teaches an angle selector adjustable to a desired angle (column 1, lines 57-58); a processor that calculates a current angle of rotation from the rate sensor measurements (column 1, lines 53-55) column 2, lines 46-47); a zero point indicator that sets a zero point for the processor to calculate the selected angle (column 2, lines 40-42).

Regarding claim 3, Tambini '042 teaches that the zero point is a reference point for the processor to calculate a selected angle (column 1, lines 51-55).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '407 with the teachings of Tambini '042. The motivation for making this combination would be to measure an angle to a user's specifications.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe et al. in view of Tambini (6,609,407) and further in view of Tsuchida et al. (JP07205042A).

Together Lampe et al. and Tambini '407 teach all of the limitations of claim 5 except a sound-generating device that activates when the selected angle of rotation has been reached.

Tsuchida et al. teaches a device that emits a sound when a screw tightening rotation angle reaches a predetermined torque value (see abstract).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '407 with the teachings of Tsuchida et al. to use a multimeter as an angle indicator and to emit a sound when the selected angle of rotation has been reached. The motivation for making this combination would be to get an accurate reading where the angle is based on the resistance of the potentiometer and to be audibly notified when the

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correct angle has been reached so as to avoid tightening too much when not watching the angle indicator.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '407 and further in view of Tambini '042 as applied to claim 2 above and further in view of Stanis (US 5,095,746).

Together Lampe, Tambini '407, and Tambini '042 teach all of the limitations of claim 6 except the limitation that the angle selector is a potentiometer.

Stanis teaches using a potentiometer for entering a maximum angle (column 3, lines 56-59).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe, Tambini '407 and Tambini '042 with the teachings of Stanis to use a potentiometer as an angle selector. The motivation for making this combination would be to implement an accurate method for selecting the angle.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '407 and further in view of Tambini '042 as applied to claim 2 above and further in view of Stanis and Suzuki et al. (4,308,779).

Together Lampe, Tambini '407, and Tambini '042 teach all of the limitations of claim 7 except the limitation that the angle selector is a resistance ladder.

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Stanis teaches that a potentiometer can be used as an angle selector (column 3, lines 56-59). Suzuki et al. teaches that a potentiometer can be in the form of a resistance ladder (column 15, lines 64-64).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe, Tambini '407 and Tambini '042 with the teachings of Stanis and Suzuki et al. to use a resistance ladder as an angle selector. The motivation for making this combination would be to implement an accurate method for selecting the angle. The motivation for making this combination would be to implement an accurate method for selecting the angle.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '407 and further in view of Tambini '042 as applied to claim 2 above and further in view of Chastel et al. (US 5,571,971).

Together Lampe, Tambini '407 and Tambini '042 teach all the limitations of claim 8 except the limitation that the processor is a microcontroller.

Chastel et al. teaches using a microcontroller as a processor to perform calculations (column 9, lines 48-49).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe, Tambini '407 and Tambini '042 with the teachings of Chastel et al. to use a microcontroller as a processor. A microcontroller can be used to make calculations quickly and so using a microcontroller would expedite the process.

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8. Claims 10, 13, 14, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '042.

Lampe teaches all of the limitations of claims 10, 13, 14, and 15 except the limitations that the means for measuring comprises means for selecting a desired angle of rotation, means for calculating the angle of rotation from the data, means for indicating a zero point from which the means for calculating basis the angle measurement and means for indicating the current angle as determined by the means for calculating (current claim 10), selecting a desired angle using an angle selector located on the housing, which further comprises a processor, a zero point indicator, and an angle selector; indicating the zero point to the processor; applying a torque to the fastener with the tool to which the device is attached to rotate the fastener; measuring the rate and speed of the rotation with the angle rate sensor starting from the zero point; and calculating an angle of rotation using the processor (current claim 13), indicating that the processor has accepted the zero point (current claim 14), alerting that the desired selected angle of rotation has been reached (current claim 15), and an angle selector adjustable to a desired angle of rotation; a processor that calculates a current angle of rotation from the rate sensor measurement; and a zero point indicator that sets a zero point for the processor to calculate the selected angle (current claim 17).

Regarding claim 10, Tambini '042 teaches means for selecting a desired angle of rotation (column 1, lines 57-58), means for calculating the angle of rotation from the data (column 1, lines 53-55; column 2, lines 46-47), means for indicating a zero point from which the means for calculating basis the angle measurements (column 2, lines 40-42), and means for indicating the current angle as determined by the means for calculating (column 2, lines 46-47).

Regarding claim 13, Tambini '042 teaches selecting a desired angle using an angle selector on the housing that further comprises a processor (column 2, lines 44-45), a zero point indicator (Fig. 2, Ref 7), and an angle indicator (column 2, lines 46- 47); indicating a zero point to the processor (column 2, lines 41-42); applying torque to the fastener with a tool to which the apparatus is attached to rotate the fastener (column 1, lines 49- 50); measuring the rate and speed of the rotation with the angle rate sensor starting from the zero point (column 1, lines 53-55; column 2, lines 43-44); and calculating an angle of rotation using the processor (column 2, lines 44-46).

Regarding claim 14, Tambini '042 teaches that the processor indicates that it has accepted the zero point (column 2, lines 34-38).

Regarding claim 15, Tambini '042 teaches alerting that the desired selected angle of rotation has been reached (column 4, lines 46-48).

Regarding claim 17, Tambini '042 teaches an angle selector adjustable to a desired angle (column 1, lines 57-58); a processor that calculates a current angle of rotation from the rate sensor measurements (column 1, lines 53-55; column 2, lines 46-47); and a zero point indicator that sets a zero point for the processor to calculate the selected angle (column 2, lines 40-42).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe with the teachings of Tambini '042. The motivation for making this combination would be to measure an angle to a user's specifications.

9. Claim 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '042 as applied to claim 17 above and further in view of Stanis.

Together Lampe, and Tambini '042 teach all of the limitations of claim 6 except the limitation that the angle selector is a potentiometer.

Stanis teaches using a potentiometer for entering a maximum angle (column 3, lines 56-59).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '042 with the teachings of Stanis to use a potentiometer as an angle selector. The motivation for making this combination would be to implement an accurate method for selecting the angle.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '042 as applied to claim 17 above and further in view of Stanis and Suzuki et al.

Together Lampe and Tambini '042 teach all of the limitations of claim 21 except the limitation that the angle selector is a resistance ladder.

Stanis teaches that a potentiometer can be used as an angle selector (column 3, lines 56-59). Suzuki et al. teaches that a potentiometer can be in the form of a resistance ladder (column 15, lines 64-64).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '042 with the teachings of Stanis and Suzuki et al. to use a resistance ladder as an angle selector. The motivation for making this combination would be to implement an accurate method for selecting the angle. The motivation for making this combination would be to implement an accurate method for selecting the angle.

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11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '042 as applied to claim 17 above and further in view of Chastel et al.

Together Lampe and Tambini '042 teach all the limitations of 22 except the limitation that the processor is a microcontroller.

Chastel et al. teaches using a microcontroller as a processor to perform calculations (column 9, lines 48-49).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '042 with the teachings of Chastel et al. to use a microcontroller as a processor. A microcontroller can be used to make calculations quickly and so using a microcontroller would expedite the process.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe in view of Tambini '042 as applied to claim 17 above and further in view of Lampe '407.

Together Lampe et al. and Tambini '042 teach all of the limitations of claim 23 except the limitation that the angle indicator is a multimeter.

Tambini '407 teaches using a multimeter as a readout of an angle potentiometer (column 2, lines 50-51).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe et al. and Tambini '042 with the teachings of Tambini '407 to use a multimeter as an angle indicator. The motivation for making this combination would be to accurately display the angle.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lampe et al. in view of Tambini '042 as applied to claim 17 above and further in view of Tambini '407 and Tsuchida et al. (JP07205042A).

Together Lampe et al. and Tambini '042 teach all of the limitations of claim 24 except that the angle indicator is a digital multimeter and a sound-generating device that activates when the selected angle of rotation has been reached.

Tambini '407 teaches using a multimeter as a readout of an angle potentiometer (column 2, lines 50-51).

Tsuchida et al. teaches a device that emits a sound when a screw tightening rotation angle reaches a predetermined torque value (see abstract).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Lampe and Tambini '042 with the teachings of Tambini '407 and Tsuchida et al. to use a multimeter as an angle indicator and to emit a sound when the selected angle of rotation has been reached. The motivation for making this combination would be to get an accurate reading where the angle is based on the resistance of the potentiometer and to be audibly notified when the correct angle has been reached so as to avoid tightening too much when not watching the angle indicator.

Response to Arguments

Applicant's arguments with respect to claims 1-3, 5-8, and 10-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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